Congenital Malformations by Race and Sex

Although there are a number of pertinent demographic variables of interest included on birth certificates, analysis of these in relation to malformations could prove invalid given their incomplete reporting. Thus, further description of North Carolina births with congenital anomalies was limited to their rates of occurrence by race and sex as recorded in the 1980 hospital discharge data (Table 3).

The data in Table 3 reveal a higher incidence of malformations among males than females. However, this difference results primarily from the higher proportion of males with genital anomalies (the ratio of males to females for anomalies of the genital organs—ICD 752—was 14.81). The ratio of total malformations among males to total malformations among females was 1.24. However, eliminating anomalies of the genital organs from the totals results in a male-to-female malformation ratio of 0.93. Also shown in Table 3 are the ratios of malformations for white to nonwhite births. While nonwhites were reported to have a higher incidence of total malformations (white to nonwhite ratio of 0.83), white infants had a higher incidence reported for several specific malformation categories. Among these, the most pronounced discrepancy was for cleft lip and palate (white to nonwhite ratio of 2.72). Overall, the rate of total malformations per 10,000 live births was highest for nonwhite males (479.8) and lowest for white females (319.0).

Table 3

Rates* of Selected Malformation Categories by Race and Sex from 1980 Hospital Discharge Data, with Male to Female and White to Nonwhite Ratios†

	White			Nonwhite			Total††			Ratio†	
Condition	Male	Female	Total	Male	Female	Total	Male	Female	Total	White to Nonwhite	Male to Female
Anomalies of Nervous System (740-742)	25.3	22.0	23.7	11.6	18.1	14.8	20.8	20.5	20.7	1.60	1.01
Anomalies of the Heart (745-746)	45.4	44.4	43.9	46.5	47.0	46.8	45.5	45.1	45.3	0.96	1.01
Other Circulatory System Anomalies (747)	41.4	28.9	35.4	51.9	42.5	47.2	44.4	33.2	39.0	0.75	1.34
Cleft Palate and lip (749)	18.5	12.9	15.8	7.2‡	4.5‡	5.8‡	14.8	10.1	12.5	2.72	1.47
Anomalies of the Genital Organs (752)	110.9	7.3‡	60.9	126.2	9.0‡	67.9	115.5	7.8	63.0	0.90	
Musculoskeletal, including hip dislocation (754)	39.8	77.6	58.0	35.8	41.6	38.7	39.2	65.3	51.9	1.50	
Reduction and other limb deformities (755)	44.6	43.1	43.9	127.1	130.2	128.6	69.7	70.8	70.2	0.34	0.98
Chromosomal anomalies including Down's Syndrome (758)	10.0	12.9	11.4	7.2‡	10.9‡	9.0	9.3	12.1	10.7	1.27	0.77
Other unspecified and multiple anomalies (759)	12.1	11.6	11.9	7.2‡	7.2‡	7.2‡	10.4	10.1	10.3	1.65	1.03
Total anomalies (740-759)	404.7	319.0	363.3	479.8	397.0	438.6	426.0	343.2	38.56	0.83	1.24

* Rate = $\frac{\text{number of malformations}}{\text{number of live births}}$ x 10,000 (race-and sex-specific)

† Ratio = $\frac{\text{number of malformations/number of births (white or male)}}{\text{number of malformations/number of births (nonwhite or female)}}$

†† Total includes cases for which race and/or sex were not stated.

‡ Numerator under 20

Trends in Congenital Malformations

Rates per 10,000 total deliveries (live births plus fetal deaths) for selected congenital malformations are shown in Table 4 for the hospital discharge and CDC data for 1980. Although the total numbers of deliveries reported for the two data sets were different (75,777 for hospital discharge data and 44,840 for the CDC data), the rates for selected conditions were usually very similar. Thus, the CDC data were examined for trends over time.

The data presented in Table 5 are from the CDC's Birth Defects Monitoring Program (BDMP). These data show rates of malformations to total deliveries in selected hospitals for the United States and North Carolina for 1970-82 and each year 1970, 1975, and 1982, with the percentage changes in rates from 1970 to 1982. Overall, the state's total rates (the cumulative number of anomalies for 1970 through 1982 divided by the total number of deliveries for these years and multiplied by 10,000 for each malformation category) were lower than those for the entire United States. Exceptions are congenital anomalies of the nervous system (BDMP Codes 125—total congenital anomalies of the nervous system, 45—anencephaly, and 56—spina bifida without anencephaly), but North Carolina's rates for these conditions decreased more dramatically during the period.